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Mallein, Tuberculin, and Stockowners.

The last number of the quarterly journal issued by that powerful political body, the Royal Agricultural Society, contains an article by Professor G. T. Brown under the curious title "The Use of Tuberculin and Mallein from the Stockowners' Point of View." We say "curious" title, because the author is not a stockowner and because the whole drift of the article is to mislead stockowners as to the value and usefulness of the agents considered.

The stockowner's point of view is certainly in the direction of his own interest, and no one with any practical knowledge of the action of mallein and tuberculin can have a doubt that the stockowner may use these agents safely in his own interest. It might be expected then that Professor Brown would take the opportunity of strongly advising the general adoption of mallein and tuberculin by all owners of stock, even if he did not suggest its compulsory employment by the Government. Quite a different view is presented for the stockowner, and mallein and tuberculin are deprecated as dangerous substances when they are not damned with faint praise. One might imagine that these agents were quite novel introductions of which no veterinarian or stockowner possessed any experience. That they have been in daily use for four years, that their action is as certain as that of Epsom salts, and that responsible men all over the world have thoroughly tried and positively approved their utility, would never be suspected by any reader of Professor Brown's pessimistic article. We regret exceedingly that an influential journal and an eminent writer should offer stockowners such a poor recommendation of agents from which they might obtain priceless assistance.

The article extends over twelve pages, eight of which are devoted to a very lucid explanation of bacteria and their products, of the use of toxines in diagnosis or cure of disease, and of the preparation and application of tuberculin and mallein. The strongest impression left on the mind of a reader of these introductory pages is that whether the agents under consideration are useful or not, they are objectionable and dangerous. In fact on page 223 the lay reader is encouraged by the description—"certain poisonous materials which are described as toxines, or in other words, poisons." The next paragraph contains a sentence even more likely to engratiate the "toxines" upon the sympathies of laymen. It is—"the main thing to be understood is that disease-producing and septic microbes while they live and grow in animal fluids produce poisons, and that when they die they leave poisons behind them in the fluids in which they previously lived." Lest this should be insufficient to prejudice a reader against mallein and tuberculin a page is devoted to raking up the *fiasco* which occurred when Koch's tuberculin was rushed upon the world as a cure for consumption. Professor Brown concludes this section as follows—"With regard to the lower animals the effect of the injection of tuberculin into tuberculous subjects was the almost immediate intensifying of the disease."

After prejudicing the reader against the agents, as though he were Counsel for the prosecution, the author goes on to consider their application. He is in apparent ignorance of what has been done with mallein in London. His idea is that horse-owners have used it chiefly to pick out glandered horses and, whilst stabling them away from the healthy stud, continue to work them. As a matter of fact only very few horses that have reacted to mallein have been allowed to live. The vast majority have been killed and submitted to post-mortem examination. At least a score of veterinary surgeons in London have a large experience of mallein. The two inspectors of the London County Council have carefully noted observations on hundreds of horses, examined by them post-mortem after being slaughtered on the mallein test. When Professor Brown says "it must certainly be admitted that experiments on a large scale are required in order to decide certain doubtful points of very great importance before mallein can be accepted as an infallible test" he is guilty of a misleading assertion. No sensible person would require an "infallible test," he would be satisfied with one that was accurate in 98 per cent. of cases, and facts and figures can be adduced to prove beyond a doubt that mallein reaches this standard. Professor Brown is not content with throwing doubt upon the accuracy of mallein as a test for glanders but he hints that it may be injurious to horses which show no reaction. He tries to bolster up this nebulous hypothesis by the assertion that "no one has followed the history of the non-reacting animals for the rest of their lives." He is quite wrong. Hundreds of horses that have been submitted to mallein without reacting have been examined post-mortem—some years and some months after the day of injection. Professor Brown says: "there has not been any duration of time which would afford reasonable opportunity of observation." What time would he call reasonable? We know one firm that has injected mallein into 1700 horses during the last three years. Most of these horses did not react and are alive and well to this day. None have ever shown a symptom of injury by mallein, and those that have died have disclosed nothing on post-mortem examination which could be traced to mallein.

Here and there in the article we find paragraphs which the expert will recognise as correct, but they are so surrounded and buried by doubts and fears, by dismal cautions and gloomy warnings, that they are almost certain to be overlooked by any reader not better acquainted with the subject than the author. Such are "tuberculin is a very valuable aid in the diagnosis of tubercle" (p. 226) and "Under proper restrictions and for a legitimate object, tuberculin and mallein deserve the fullest recognition" (p. 230.)

The great objection Professor Brown has to these agents is that stockowners may use them and sell their infected stock. Surely the way to meet this evil is for other stockowners to test their new purchases and so guard against being cheated. The best advice to give is—use the valuable agents science has provided, and try to persuade a dilatory legislature to enforce their most effective method of use.

CASES AND ARTICLES.

POLYURIA AS A SYMPTOM OF TUBERCULAR DISEASE IN THE HORSE.

By J. R. Green, F.R.C.V.S., Alfreton.

Upon reading the report of a recent meeting of the Royal Counties Veterinary Medical Society held at Aylesbury, the remarks of Mr. Walker and Mr. Sutcliffe Hurndall, called to my mind two cases of equine tuberculosis which have occurred in my practice during the last four years.

Case I. A black cart gelding, eight years old, first seen by me in May, 1892, the chief symptoms exhibited were impaired appetite, flagging at work, occasional attacks of abdominal pain, and tucked up appearance of the abdomen. Things went on in this unsatisfactory manner for about two months, there being little alteration in the symptoms, the animal meantime doing very little work. About the end of this time profuse diuresis and great thirst set in, with rapid emaciation and a harsh tightened condition of the skin, the urine was normal in colour and consistency, and passed without any undue effort, the only thing noticeable being the immense quantity passed. I repeatedly advised the owner (a relative of mine) to have the horse destroyed, but it was not until the end of August that he would consent.

Post-mortem examination. The mucous membrane of the air passages, and all the thoracic viscera were perfectly healthy, but the abdominal organs were studded with indurated nodules of various sizes, ranging from a pea to a large apple, the spleen was more particularly affected, weighing 20lbs. and being one mass of nodular growths.

As I had never before seen tubercular lesions in the horse, I refrained from giving an opinion as to the nature of the disease, but forwarded the specimen to Prof. Axe, who pronounced it to be "tuberculosis."

Case II. A half-bred bay mare, four years old. My attention was called to her in June, 1894. The symptoms were at the commencement similar to those in case No. I. except that there were occasional attacks of diarrhœa but no pain, and in this case diuresis was most profuse and occurred almost at the commencement of the illness. There was also very rapid emaciation, and stiffness in the lumbar region during movement, she also groaned upon being moved about. The mare had a ravenous appetite during the last few weeks of the illness.

Bearing in mind the former case, and concluding that I had tubercular disease to deal with, I informed the owner of the fact, and had the animal destroyed after six weeks' illness.

Post-mortem examination. With the exception of the heart and its appendages the whole of the thoracic and abdominal viscera were covered with miliary tubercules, spleen extensively diseased. The mesenteric glands, however, were the most markedly affected. These were hypertrophied and indurated, and were in some instances the size of an ordinary turnip. I could find no trace of softening in any of the growths. The peritoneal cavity contained about four gallons of straw-coloured fluid, the kidneys and bladder were, to naked eye appearances, healthy.

The absence of disease of the kidneys in both cases led me to believe that the profuse diuresis was due to an effort on the part of those organs to throw off some poison excreted by the bacilli.

Another feature in connection with these cases which may, however, be only accidental, is that they both belonged to one owner, the second animal being bought to replace the first one and occupying the same stall, which it did for about 18 months before showing any signs of disease.

I omitted to say that in the last case I forwarded portions of viscera to Prof. McFadyean, who pronounced it to be "tuberculosis without doubt" he having succeeded in obtaining the bacillus from it.

In case No. II. about the third week of illness I applied the mallein test for glanders, with negative results.

EXTENSIVE ABDOMINAL WOUND IN A FILLY.

By G. Mayall, assistant to J. H. Cooper, Dover.

An able and distinguished professor having recently taught that abdominal surgery in the horse is not such a serious matter as was formerly supposed, the following case may be of interest. On Saturday afternoon, June 3rd, we were called to see a three-year-old filly which just after having been served by a young stallion and while going through a gateway, was driven by a rush of three colts which were in the same field against the latch of the gate.

On our arrival about an hour after the occurrence found a large wound through into the abdomen, extending backwards and downwards, and commencing at the upper part of the lower third of the 8th rib.

A triangular flap of skin 14 inches by 8 was hanging down as was also a big piece of the obliquus abdominis externus muscle. A square foot of mesentery was also out, three ribs torn from their cartilages, and colon protruding.

We cut off the hanging mesentery, also the piece of muscle, punctured the bowel in three or four places with an exploring needle, having no trocar and canula with us, and then pushed back the bowel. We scooped out a lot of clotted blood from between skin and wall of abdomen, and made a large hole low down in the skin to allow of drainage. We then sutured the abdominal wall and skin and put a binder right round the abdomen. The antiseptic used during the operation was carbolic acid in glycerine and water and this has been used entirely since. The piece of skin naturally in course of time sloughed off and left a bare wound about twelve inches by seven. This was gradually lessened and to-day, July 25th, only a small scar is left. The mare was never off her feed and there was never any rise of temperature above 103dgs. She had no very favourable hygienic surroundings to aid her recovery. If she has a foal she will crown the issue of this case.

THE SUMMER SESSION.

By E. Wallis Hoare, F.R.C.V.S.

The practical education of veterinary students is a question that has at all times occupied a prominent position in professional politics. Reference to veterinary literature of former years will demonstrate the importance of the subject, and how thoroughly the writers of those days recognised the deficiency of clinical instruction that existed. Many means were suggested in order to overcome the difficulty, the majority of observant practitioners arriving at the conclusion that a system of compulsory pupilage was the only radical measure which could be productive of benefit.

In the present day the need of practical knowledge has not decreased, while the means afforded to the veterinary student of obtaining it have not increased. True, we now have a four years course and an imposing array of subjects in the curriculum, besides a severe practical examination; but while admitting the advantages of these alterations it is our duty to consider the question of the opportunities which are open to students to obtain clinical knowledge. We do not desire to criticise the value of the practical teaching at the various Colleges, but we can assert with confidence that without an insight into the details of general practice, the student will find himself unfit to undertake the onerous and responsible duties that fall to the lot of the veterinary surgeon. The outcry for practical education is not confined to our profession. In the columns of medical journals we see frequent references to the subject, and also the off-repeated statement that hospital practice and private practice are by no means identical.

Let us determine if possible, the only means available to the veterinary student to acquire that proficiency which will not only enable him to satisfy his examiners, but also fit him for the important duties of his profession. A summer session at a teaching school cannot afford him these opportunities for very obvious reasons, which we shall presently mention. Clearly then his only chance is to spend the summer months with a practitioner, where he will be able to observe and study diseases in all their phases, and where he will frequently have to depend on his own resources in the treatment of cases and thus acquire confidence and tact; two essentials that cannot be by any means overlooked in veterinary practice.

It may be said that the practice at the teaching schools will suffice for these purposes; but, with a large number of students and a limited variety of cases, how can that acquaintance with different classes of practice be obtained? In colleges every requisite is at hand, trained assistance is always procurable, and everything is presented in its most favourable aspects in the treatment of cases. How different this is when compared with the daily duties of a general practitioner. He has to make the best of the surroundings of his patients, and do what he can with the assistance that he can avail himself of. He sees cases in all varieties of animals, and in all stages, and he has to meet and to please various clients of all diversities of temperaments. With these the student is brought into contact and gains valuable information for his future career.

Let us not forget that important branch of the profession, viz., cattle practice. How is this to be practically studied at a college? We all know the value of lectures on this subject, and remember the pseudo-clinical demonstrations on the resident cow in the college. But what was their value when we were brought face to face with the patients in the cowshed? And those lectures on obstetrics, with the diagrams showing the various presentations, how useless they proved to be when we found ourselves manipulating a difficult calving or foaling case for the first time. It is an injustice to the student to send him forth to practice until he has had sufficient practical teaching in this respect. We must remember that all students are not intended to shine as bacteriologists, or prove themselves adepts with the microscope. The mere passing of examinations is but the commencement of difficulties which increase after their college career has ended. Graduates have to earn a living by the practice of their profession, and in order to accomplish this it is absolutely necessary that they be proficient in the ordinary details of practical work.

Competition is keen in the present day, the public expect more usefulness and skill than in the past, and many of those persons with whom the young practitioner is unavoidably brought in contact, are, by force of experienc, tolerable judges of his ability. The days for filling the proverbial ten-acre field with victims in order to gain experience are numbered, therefore it behoves the present days students to acquire clinical knowledge, and it is the duty of those having charge of students to make suitable arrangements in order to place this object within their reach.

The six months of the summer constitute but a meagre period in order to gain this necessary experience, nevertheless much benefit can be derived by an observant student. To compel him to spend the best portion of this time at a college is unfair, and those who instituted a summer session must know very little with reference to the requirements of the young practitioner.

Again, we must consider the position of the veterinary surgeons who take pupils for the summer months; with the summer session in force the time is broken up in a most undesirable manner, which is detrimental to both parties. It takes a little time to initiate a student into the routine of a practice, and much valuable time is lost and opportunities neglected by the student having to attend a summer session. Some scientific critics may assert that clinical teaching is of no value except to advanced students. Granted that it is of greater importance to fourth year students because of their theoretical knowledge, still we cannot shut our eyes to the fact that a very large area of ground has to be investigated in clinical study, and that the earlier the powers of observation are brought into action the more acute they will become. And who will deny the fact that one typical case of a disease which is seen and studied is worth more than hundreds of lectures and myriads of descriptions of the same subject. As regards diagnosis and treatment? The mere reading of the causation, symptoms, pathology and treatment of a number of diseases will

prove of little practical value, but let the case be observed, the symptoms pointed out, and the disease explained in a simple manner at first, then the student will read up the subject with interest and reap benefit thereby. Actual observation in the stable and cow-shed is the ground-work of clinical study, this the student will obtain during his term with the practitioner. Nor should we forget the important amount of knowledge with regard to diseases of the feet that the student can pick up in the shoeing forge, not one we would suggest, confined to a certain class of horses, but where all classes are shod, from the hunter to the cab-horse. Here a valuable insight is obtained on the subject of lameness, the varieties of feet, the shoeing for various diseases of the feet, and many other details of vital interest to the student for his future career.

Innumerable are the advantages and benefits to be obtained from the proper use of the summer months, not appreciable perhaps to those, who, possessing "fads" with reference to scientific knowledge, thereby treat those subjects mentioned with contempt, and believe that college teaching is the acme of perfection. We cannot expect students to learn by inspiration the details of veterinary practice, but by placing them with a practitioner they are compelled to become expert with their hands as well as with their minds—and veterinary practice cannot dispense with art.

Students presenting themselves for their final examination cannot possess the same amount of clinical knowledge as a practitioner of some years standing, but what we should insist on is, that they shall be capable of performing the ordinary duties of the profession, be able to demonstrate this to the public, and possess sufficient tact to conceal any lack of knowledge when confronted with an obscure case and a client of peculiar temperament. Whether the four-years-course, the addition of new subjects to the curriculum, and a more searching practical examination, will have the effect of rendering the coming graduates more proficient in these respects remains to be proved, but it is manifestly unfair to expect superior clinical knowledge, if the teaching schools by adopting a summer session prevent the students from availing themselves of the only chance they have of acquiring it.

Tuberculosis.

The Queen has issued a commission "to enquire and report what administrative procedures are available and would be desirable for controlling the danger to man through the use as food of the meat and milk of tuberculous animals, and what are the considerations which should govern the action of the responsible authorities in condemning for the purposes of food supplies animals, carcases, or meat exhibiting any stage of tuberculosis." The Commissioners are Sir Herbert Maxwell, Mr. Richard Thorne Thorne, C.B., medical officer of the Local Government Board, Mr. George Thomas Brown, C.B., Mr. Harcourt Everard Clare, Mr. Shirley Forster Murphy, member of the Royal College of Surgeons, Mr. John Speir, and Mr. Thomas Cooke Trench.

EXTRACTS AND NOTES.

SWINE-FEVER.

By J. McFadyean, Royal Veterinary College, London.

Abstract of a paper read before the National Veterinary Association at Yarmouth.

Etiology.

There are good reasons for believing that the germ of swine-fever belongs to the class of obligatory parasites, which do not find the combination of conditions necessary for their multiplication in the outer world, and which therefore in natural circumstances propagate only in the animal body. In other words, swine fever is, like glanders or tuberculosis, a purely contagious or infectious disease, and the germ which is the cause of it would cease to exist if the porcine species became extinct.

The bacillus is in the main a tissue parasite. In a pig dead from the disease it is recoverable by ordinary bacteriological methods from the various lesions, but it is only rarely found in the blood. In natural cases of the disease the bowel and the mesenteric glands constitute its most constant seats. Points of interest relating to it are that it grows slowly at ordinary summer temperature, and that it is, at least in artificial cultures, possessed of very feeble powers of resistance. It is killed by complete desiccation at 100° F., and in the moist state it does not survive exposure to a temperature of 140° F. for more than a few minutes.

Mode of Infection.—Probably all cases of natural infection take place by the ingestion of bacilli voided from the intestine of a previous subject of the disease, and there can hardly be a doubt that this infection is nearly always direct. It is probable that the disease is sometimes spread by human beings and other intermediary agents, but the all-important factor in the diffusion of swine-fever is the sale of apparently healthy pigs that have in reality received the infection or are actually suffering from the disease in a mild form.

Symptoms.

The symptoms usually exhibited in a moderately severe case of swine-fever are somewhat as follows. Slight but gradually increasing dulness and loss of appetite; the pig comes less readily than usual to be fed, and in the intervals between meals it does not move much about, but inclines to lie buried among its litter. A very early symptom is drooping of the tail. As the disease advances the appetite for solids becomes almost lost, but thirst is present and any liquid given with the food is greedily sucked up. Diarrhœa may or may not be present; when it is the fæces are greyish in colour and unusually offensive in smell. The animal rapidly loses condition and the coat becomes harsh and dry and the hairs erect. Sometimes there is a little muco-purulent discharge from the conjunctiva. The respiration is not materially quickened, and the temperature may not be more than one or two degrees above the normal. In the last stage of the disease the pig lies persistently, and when made to move its gait is uncertain and it may appear partially paralysed in its hind limbs. The skin may show a red or livid discoloration, especially on the under aspect of the body. Death occurs quietly and without convulsions.

If the disease is allowed to run a natural course, the pig may exhibit most of the above symptoms for a week or two and then gradually recover its appetite; but in young animals a long period of unthriftiness generally ensues, and growth is almost entirely arrested. The skin remains harsh and scurfy, and there is some degree of depilation, especially around the eyes.

In the very acute cases, in which death occurs within two or three days after infection, the only symptoms exhibited are great depression, total refusal of food, profuse fetid diarrhœa, and pyrexia (up to 108° F.)

Last, but not least in point of importance, it remains to be said that in many cases of swine-fever the symptoms are almost *nil*; for a few days there may be slight dulness and drooping of the tail, but the appetite is retained, the temperature is scarcely above normal, and neither skin eruption nor diarrhœa is present. These statements are based on experiments in which pigs that had been fed with portions of ulcerated bowel and killed some weeks afterwards were found to have partially or completely cicatrised ulcers in the large intestine, although they had, in the interval, shown no decided symptoms of ill-health.

Morbid Anatomy.

In dealing with this part of the subject, I shall in the first place give the results of a series of twenty post-mortem examinations, and then under the head of the principal organs discuss the naked-eye and microscopic characters of the lesions most commonly met with in swine-fever. With regard to the following series of cases it may be observed that a special value attaches to the post-mortem record, inasmuch as in each instance the exact date of the pig's infection was known.

[We have have only reprinted four of these cases. The whole series should be read in the published paper.]

Case I.—Pig about two months old. Infected by feeding with artificial culture of the swine-fever bacillus. Died on the second day.

Post-mortem.—Slight livid skin discolourations on under aspect of abdomen.

Mesenteric glands slightly congested, but not appreciably enlarged. Glands of large intestine deeply congested, but not enlarged.

Large intestine. Intense bright red injection of the mucous membrane, particularly that covering the ileo-cæcal valve. Equally intense inflammation, with punctiform hæmmorrhages, throughout nearly the whole length of the colon: no ulceration or diphtheritic deposit.

Small intestine. Moderately congested throughout.

Stomach. Mucous membrane intensely inflamed with bright vascular injection, most severe along the great curvature and in the pylorus. Sleen, liver, and kidneys normal. Thoracic organs normal, save for some ecchymoses under the endocardium of the left ventricle.

Tongue and throat normal.

Body lympathic glands normal.

Case V.—Pig about three months old. Fed with artificial culture of the swine-fever bacillus on two occasions with an interval of six days. Killed on the tenth day after the first feeding.

Post-mortem.—Carcase very well nourished. Peritoneum normal.

Mesenteric glands are slightly enlarged, and show some cortical congestion; glands of large intestine normal.

Large intestine. Mucous membrane of cæcum near the ileo-cæcal valve deeply congested. Throughout the cæcum there are numerous cicatrised ulcers, none of them larger than the surface of a split pea, and most of them very much smaller. First 3 feet of colon also deeply congested, and beset with very numerous ulcers similar to those in the cæcum.

Small intestine. Last 18 inches shows marked congestion of the mucous membrane, but no ulceration. Other abdominal organs normal.

Thoracic organs normal.

Tongue and throat normal.

Case VIII.—Pig about two months old. Infected by feeding with swine-fever bowel and lung. Died on the twelfth day.

Post-mortem.—A little livid discolouration of skin of the throat and inside of hind legs. Inguinal glands moderately congested, but not sensibly swollen.

General peritonitis; about half a pint of watery, deeply bloodstained fluid in the peritoneum. Intense congestion of the peritoneum covering the large intestine, with numerous ecchymoses and blood extravasations up to the size of finger-nail. The peritoneum is here covered with a stringy exudate. The adjacent loops of the small intestine and the mesentery belonging to them are in a similar condition, but for the most part the peritoneum of the small bowel is much less inflamed, though everywhere it shows petechial hœmorrhages. The parietal peritoneum is for the most part normal, save that it shows hæmorrhages, which are most numerous in the region of the flanks. The peritoneum covering the stomach also shows numerous hæmorrhages.

The mesenteric glands are much enlarged, and from congestion and hæmorrhage their cut surface looks almost like spleen pulp. The glands of the large intestine are in a similar condition. Splenic and gastric lymphatic glands livid from congestion.

Small intestine. Solitary glands swollen, appearing as white opaque spots; the mucous membrane over them is intact. Mucous membrane is for the most part normal, but congested at some places.

Large intestine. The blind end of the cæcum for a length of about 4 inches is tremendously congested, its mucous membrane recalling tho appearance of a piece of strangulated bowel. The mucous membrane here, and for a distance of about 8 inches along the colon, is thickly studded with ulcers of various sizes, but mostly about the diameter of a split pea or a little larger. The ulcers show a dark necrotic surface, surrounded by a well-defined whitish collar of swollen mucous membrane. There are several ulcers on the ileo-cæcal projection. In the colon the congestion of the mucous membrane is slight until the terminal part, in which it is intense. A few isolated ulcers are present here and there as far as the middle of the colon.

Stomach. The mucous membrane at the fundus is of a bright red colour, due to intense congestion and small petechial hæmorrhages. There are no ulcers in the stomach, but at one place there is an elevation of the mucous membrane, as if from submucous infiltration about the size of a split pea.

Spleen normal in size, pulp normal.

Kidneys show multiple petechial hæmorrhages in the cortex, especially numerous under the capsule.

Liver normal.

Lungs œdematus; a few lobules in a condition of collapse—no pneumonia.

Heart has right side distended with dark tarry blood. Some ecchymoses under endocardium of left ventricle.

Bronchial lymphatic glands congested. Prepectoral and prescapular glands ditto.

Case XVII.—Pig about four months old. Infected by feeding with ulcerated bowel. Killed on the 25th day.

Post-mortem.—No eruption on skin. About 2 ounces of clear watery fluid in the peritoneum; peritoneum normal. Mesenteric glands slightly congested; glands of large intestine normal.

Large intestine. Cæcum contains numerous ulcers, varying in size from a sixpence downwards; all of these are partially cicatrised, but none completely. The floor of the ulcer is more depressed than in the previous case, and contrasts more by its deeper vascular tint with the surrounding mucous membrane; the mucous membrane circumscribing the ulcer slopes inwards. Most of the ulcers are partly covered by a yellow easily detached material, like thick pus; beneath this covering the floor of the ulcer shows distinct granulations. A few exactly similar ulcers are found in the first half of the colon.

Small intestine. Terminal part of ileum shows numerous cicatrising ulcers, similar to those of the large

intestine, but with the healing process rather further advanced: most of these ulcers are about the size of the surface of a split pea, but some are larger. They are most numerous in the last 6 inches, but are found as far as 4 feet in front of the ileo-cæcal valve.

Stomach normal.

Spleen normal.

Kidneys normal.

Liver normal.

Small patch of collapse in the right lung; lungs otherwise normal.

Bronchial glands normal.

Heart normal.

Inguinal glands normal; glands in front of shoulder normal.

Mouth and throat normal.

Mouth.—In a small proportion of fatal cases lesions are present on the tongue in the form of a sharply-defined necrosis of the mucous membrane, circular or oval in outline, and usually seated on the upper third of the organ. The necrotic part is dry looking, greyish in colour, and recalls the appearance of the better known ulcer of the large bowel. Doubtless in some cases the necrotic part is thrown off as a slough, and ultimately replaced by a smooth cicatrix, but it has never been my lot to meet with lingual lesions in this stage.

Disease of the tonsils must be reckoned among the rare lesions of swine-fever. Here, again, the lesion is a necrosis, and it apparently has its starting-point in connection with the crypts of the tonsil. The necrosis may extend for a considerable depth, and the dead tissue may be detached, leaving an irregular ulcer.

In only one instance (Case XIII) have I encountered a lesion on the mucous membrane of the cheek, and that had a similar appearance to the lingual ulcer.

These lesions are probably more frequent than might be inferred from the fact that most authors fail to mention them, for in practice the mouth is only exceptionally examined at the autopsy. Failure to detect them cannot be regarded as a serious oversight from a diagnostic point of view, for it is in the highest degree improbable that they ever occur without the simultaneous presence of equally or more characteristic lesions in the bowel.

Stomach.—In very acute cases of swine-fever the lesion here may present itself as a most intense gastritis diffused over a large area of the mucous membrane. The part most frequently affected in this way appears to be the pylorus and the lower part of the organ (along the greater curvature, but sometimes the entire mucous membrane is inflamed.

In a small proportion of cases the gastric mucous membrane is the seat of a sharply-defined necrosis, producing a lesion that closely resembles the ulcer of the intestine. It seldom happens that more than two or three such ulcers are found in the stomach.

Small Intestine.—Next to the large bowel this is the part of the alimentary canal in which lesions are most frequently present. In animals dying early the mucous membrane may be in a condition of superficial inflammation, attended with almost general injection of the small vessels. Sometimes it is dotted with minute hæmorrhages into its substance, and more frequently the solitary glands and Peyer's patches are swollen, especially in the terminal part of the ileum. But the commonest lesion of all in the small intestine is a diffuse diphtheritic inflammation, or a necrosis of the mucous membrane, generally in the form of small round spots (rarely as large as the surface of a split pea), which very promptly become converted into circular ulcers by the detachment of the slough. Sometimes this ulceration is so extensive in the latter part of the ileum that only remnants of the mucous membrane are left; these then appear as irregular pale islands, standing above the level of the red ulcerated surface. Whatever may be the reason, the necrotic mucous membrane seems to be much more promptly cast off here than in the case of the large bowel, and cicatrisation in favourable cases appears to proceed more rapidly. Sometimes the necrosis involves only the villi and a thin superficial stratum of the propria mucosæ and glands of Lieberkuhn, but in other cases it involves the entire thickness of the mucous membrane.

The diphtheritic lesion is simply a diffuse superficial necrosis of the mucous membrane, accompanied by the coagulation of a thin layer of croupous or fibrinous exudate on its surface. As a rule these lesions (diphtheritic layer and discrete ulcers) are absent from the first half of the small intestine, and frequently they are found only in the last few feet of the ileum.

Large Intestine.—Experience seems to justify the belief that in swine-fever lesions are of constant occurrence in the large intestine, and that certainly cannot be said of any other organ. The alterations encountered in the large bowel vary greatly both in extent and nature.

In very acute cases (dying within two or three days after infection) the only lesion present in this part of the bowel may be a diffuse superficial inflammation accompanied by marked congestion, and with nothing to distinguish it from an enteritis set up by the presence of an irritant poison of a chemical nature. Fortunately, however, for diagnosis, death at this stage of the disease is very rare. In the twenty cases of which details have already been given, there were only two (Nos. I and III) in which diphtheritic lesions or actual ulcers were not present in some part of the large intestine.

The diphtheritic lesion of the large intestine may be found in a very well-marked form in pigs within three or four days after infection. It may affect almost the whole of the cæcum and colon or be confined to a few irregular patches, and it may or may not be associated with circumscribed areas of necrosis (ulcers). When very extensive it appears to denote a very large dose of the agent of infection, or a feeble resistance on the part of the individual. Probably the diphtheritic lesion is always preceded by a stage of inflammatory hyperæmia, following upon which the surface of the mucous membrane assumes a greyish tinge and becomes abnormally rough. When fully developed the surface of the membrane is covered with a thin adherent greyish or yellowish exudate.

By far the commonest and most important lesion of swine-fever is the so-called ulcer of the large intestine. Its importance arises from the constancy with which it occurs in all save very acute and rapidly fatal cases, and from the fact that the ulcer has characters by which it may without difficulty be distinguished from other intestinal lesions met with in the pig. In the earliest stage at which the ulcer is usually encountered it is simply a sharply defined, approximately circular necrosis of the mucous membrane, the dead tissue being still retained in position. The ulcers vary greatly in point of size and still more in numbers in different cases. Sometimes almost the entire mucous membrane of the cæcum and colon is thickly studded with ulcers, but in other cases only a few are present. The cæcum and the first few feet of the colon are the commonest seat of the ulcers, but sometimes they occur as far back as the rectum. Frequently, though by no means constantly, the ileo-cæcal projection is ulcerated, but that and the whole of the cæcum may be free from ulcers, although these are present in the colon.

The ulcers commonly vary in diameter from that of a split pea to that of a sixpence, though they may reach the size of a florin. Their surface is greyish, yellowish, or even black, and when the necrosis is recent the surface of the ulcer is firmer and drier looking than that of the surrounding mucous membrane. Sometimes the surface of the necrotic patch is only a little above the normal level, but at other times it projects considerably, and it may be covered with a thicker or thinner diphtheritic deposit. In ulcers of considerable size the surface often shows irregularly concentric rings.

The depth to which the necrosis extends into the wall of the bowel varies greatly. Generally it involves the whole thickness of the mucous membrane and part of the submucous coat, but sometimes it does not reach the muscularis mucosæ, and in other cases it extends as far as the outer muscular coat. When the necrosis extends well into the submucous coat, and a productive inflammatory reaction takes place beneath the dead stratum, the deeper part of the submucous coat and the muscular coat become markedly thickened, and in this way ulcerous tumours projecting much above the normal level of the mucous membrane are formed.

Perforation of the bowel wall through extension of the necrosis to the peritoneal coat is a very rare lesion in swine-fever.

Before leaving this part of the subject it may be well to utter a word of caution against the danger of mistaking a condition of simple plugging of the crypts on the side of the ileo-cæcal valve for ulceration. Not infrequently, especially in old pigs, these crypts contain masses of what appears to be inspissated secretion, which may be squeezed out of them under slight pressure between the finger and thumb; indeed, this condition is so common that it can hardly be considered an abnormality, and, in any case, it has nothing to do with swine-fever. Sometimes, however, though not so frequently as is generally supposed, these plugged follicles form the starting-point of an actual necrosis, leading to the formation of an ulcer on the side of the ileo-cæcal projection.

Perhaps it may not be amiss to also mention here the small branched glands, somewhat resembling the glands of Brünner, which in the large intestine of the pig are placed in the submucous coat, embedded in a little mass of lymphoid tissue. Each gland has a duct which passes between the glands of Lieberkuhn and opens as a pore, distinctly visible to the naked eye, on the surface of the mucous membrane. These glands appear as round whitish spots in the bowel wall, and they must not be mistaken for ulcers, although, exceptionally, necrosis and ulceration start in connection with them.

Liver.—In some cases of swine-fever this organ is the seat of a very interesting lesion, viz. a multiple miliary necrosis. The areas of necrosis are sometimes present in almost every lobule, and they might easily be mistaken for miliary tubercles. To the naked eye they appear as greyish opaque specks about the size of a mustard seed.

Spleen.—As a rule, in swine-fever the spleen is perfectly normal in appearance. In very malignant cases it may be so much enlarged and softened as to remind one of an anthrax spleen, and it may contain areas of necrosis similar to those found in the liver.

Lymphatic Glands.—In very malignant cases of swine-fever the lymphatic glands are generally enlarged and congested, the congestion often being accompanied by hæmorrhages. In the majority of cases, however, the only lymphatic glands that present any abnormality are those found in the abdomen—gastric, hepatic, splenic, and intestinal. All or any of these may be much enlarged, and so deeply congested as to resemble spleen pulp on section. But in many cases, if not the majority, even these groups show but little congestion. The mesenteric group is, next to the bowel, the most constant seat of the bacilli in natural cases of swine-fever, but the presence of the bacilli there may not be attended with great vascular disturbance. These glands are generally somewhat swollen and juicy in the early stage of the disease, and at a later stage they may contain areas of firm dry necrosis up to the size of a pea or larger. Those changes are most frequent in the last of the mesenteric glands—those on the track of the lacteal vessels coming from the terminal part of the small intestine.

Peritoneum.—It is in only a small proportion of cases that the peritoneum presents any abnormality.

Kidneys.—As a rule these organs appear normal, and the only lesions that I have encountered in them are multiple hæmorrhages in the cortex.

Heart.—Save for occasional sub-endocardial ecchymoses in malignant cases, the heart presents no abnormality, and the blood throughout the body is quite normal in appearance.

Lungs and Pleura.—The only lesions that are frequently encountered in the lungs of pigs that have died or been killed while suffering from swine-fever are small hæmorrhages and collapse. Multiple petechial hæmorrhages under the pleura and throughout the lung substances are frequently present in acute malignant cases, and small areas of collapse are still more common when the disease runs a lingering course. This collapse appears to be due simply to the feebleness of the respiratory movements, and cannot be regarded as in any way an essential lesion of swine-fever. Actual pneumonia, whether catarrhal or croupous, is a quite exceptional occurrence, and it is very probable that it is generally, if not always, a complication of the disease, and not caused by the swine-fever bacillus.

In support of the statements just made it may be pointed out that in not one of the twenty cases of which details have been given in the preceding part of this article was there any pneumonia, and I am informed by Messrs. Cope and Duguid that, among the large number of swine-fever organs that pass through their hands at the Board of Agriculture, they rarely meet with pneumonia lesions.

The term pneumo-enteritis, which was originally suggested by Dr. Klein as a fitting designation for this disease, must therefore be pronounced a misnomer.

Regarding the occurrence of pleurisy it need only be said that it is still rarer than pneumonia, and that when it does occur it is also probably a complication, and not caused by the swine-fever bacillus.

Skin.—In the virulent rapidly fatal form of the disease a rash is often present on the skin. In rare instances the skin shows almost everywhere a livid discolouration, but more frequently this rash is confined to the ears, the under surface of the body, and the inner aspect of the limbs, the skin in these portions being mottled with livid or dark red spots. The discolouration appears to be due to a venous congestion of the cutaneous vessels, and it is not associated with any swelling of the skin or subcutaneous tissue. In the great majority of cases of swine-fever the disease runs its course without the development of any abnormality in connection with the skin.*

Diagnosis.

Diagnosis during Life.—There are some people who maintain that the *intra-vitam* diagnosis of swine-fever is not a matter of difficulty, but this confidence in their own skill is probably misplaced. When one has to deal with an outbreak or series of cases of swine-fever in which a reliable history of the pigs before and since the appearance of the disease is obtainable, then one may make a diagnosis with small risk of error; but when only one animal is ill and its past history is not obtainable, then diagnosis is only a sort of guesswork with the chances of being right or wrong about equally divided, and in the case of a heterogeneous collection of pigs exposed in a market inspection with a view to the detection of swine-fever is a mere farce.

The points which are of most importance with regard to diagnosis are:—(1) a record of exposure to infection or of contact with pigs whose history is not known (such as is involved in the purchase of pigs in open market or from

* I remember seeing in the possession of the late Professor Walley some pieces of skin with circular greyish patches of necrosis, which he regarded as examples of cutaneous swine-fever lesions, and which certainly had a remarkable resemblance to the ulcers of the large intestine.

a dealer); and (2) evidence of the illness being contagious (several animals becoming attacked in the same lot); and (3) the exhibition of a train of symptoms like those described in the first paragraph under the head of "Symptoms." In other words, when in a lot of pigs recently (within one or two weeks) bought, or in contact with pigs recently bought, or otherwise placed in circumstances involving a clear possibility of infection, several are within a short interval attacked with illness and exhibit such symptoms as those previously described one may with very little chance of error diagnose swine-fever.

Diagnosis after Death.—It will be gathered from what has just been said that the detection of swine-fever during life is often difficult and not infrequently impossible, but fortunately diagnosis is not attended with much risk of error when one has the opportunity to make a post-mortem examination before pronouncing an opinion. As the outcome of experiment and of observation in naturally-occurring cases of swine-fever it appears a justifiable conclusion that with few exceptions animals that become the subjects of this disease develop in the large intestine lesions that are pathognomonic.

These lesions are either the diffuse diphtheritic inflammation (which is essentially a superficial necrosis) or the more frequently encountered circumscribed necrosis termed an ulcer. It has been said that a diphtheritic enteritis may in the pig be caused by other irritants than the swine-fever bacillus, and it would be impossible to prove the contrary, but up to the present no evidence in support of that being the case in this country has been produced. In the present state of our knowledge one is therefore justified in pronouncing every case in which diphtheritic inflammation or circumscribed ulcers are encountered in the large intestine as of one of swine-fever.

Does the absence of these lesions warrant the diagnosis —not swine-fever? The answer to this must be in the negative, for from the cases previously described it is evident that a pig may die from swine fever and yet present no lesion in the bowel beyond an intense inflammatory congestion and punctiform hæmorrhages. This may appear to constitute a serious objection to basing a negative diagnosis on the absence of ulceration or diphtheritic lesions in the large intestine, but in practice it has hardly any importance, for in naturally-occurring cases of swine-fever (that is, excluding experimental cases infected with a large quantity of material) death before the characteristic lesions have had time to develop in the bowel is probably an extremely rare occurrence.

Finally, as a further qualification of the statement above made regarding the diagnostic value of diphtheritic lesions and ulceration of the large intestine, it ought to be admitted that the bacillus of swine-fever probably sometimes propagates in the bowel or in the mesenteric glands without exciting any notable macroscopic alteration beyond slight congestion. This is suggested as a possibility by experiments in which, out of a number of pigs of the same age simultaneously fed with infective material, some, when killed several weeks afterwards, are found to have numerous ulcers, others only a very few, and some none at all. But that would apply only to cases in which the disease runs such a mild course as to be unattended by any distinct symptoms, and the fact, therefore, ceases to have any importance bearing on post-mortem diagnosis, since, in practice, this will always be based on the autopsy of a pig that has died or been killed while ill.

Prophylaxis.

Prior to the 24th of December, 1878, swine-fever was not, for the purposes of the Contagious Diseases (Animals) Act, regarded as a contagious disease On the date mentioned an Order of Council brought it under the operation of that Act; and 1879 is the first year for which we have officical returns showing the prevalence of the disease.

In 1893 a Departmental Committee was appointed to inquire into the provisions of the Contagious Diseases (Animals) Act in so far as they related to swine-fever, and to consider whether any more effective means of dealing with the disease could be devised. In their Report the Committee advised that the work of exterminating swine-fever should be placed in the hands of a central authority, and in order to give effect to this recommendation the Swine Fever Act was passed, and came into force on the 1st November, 1893. This Act made the Board of Agriculture the central authority, and empowered the Board to slaughter and to pay compensation.

At the outset of its operations against swine-fever the Board pursued in the main the plan which had proved successful in the case of pleuro-pneumonia. When an outbreak, or supposed outbreak, of the disease was reported to the Board, a veterinary surgeon in the district was directed by telegram to visit and examine the diseased or suspected animal; and in the event of his considering that there were sufficient indications of swine fever, he was authorised to slaughter the animal and forward the heart, lungs, and abdominal viscera to the laboratory of the Board in London. At the same time the premises were placed under restrictions, in order to prevent the removal of any of the animals pending the decision of the veterinary officers of the Board. If in the opinion of the veterinary officers of the Board the lesions discovered in the viscera warranted the diagnosis of swine-fever, a travelling or lay inspector was sent to make arrangements for the slaughter and disposal of the carcases of all the pigs on the premises. For the animals thus slaughtered the owner was paid compensation by the Board.

This plan of dealing with outbreaks was closely followed for a few months, but it was afterwards modified to the extent that such pigs on the infected premises as were supposed to have escaped infection were placed under quarantine for a period of two months, at the end of which time they were liberated, provided no case of swine-fever had occurred among them in the interval.

For some time the system of partial slaughter has been abandoned, and now all pigs that have, in the opinion of the local veterinary inspector, been exposed to infection are slaughtered. In the early part of 1894 the Board issued an "Infected Areas Order" placing restrictions on the movements of swine out of or within certain prescribed districts; and in the following July a "Markets and Fairs Order" was issued to regulate the sale of swine in areas specially defined for the purpose. These supplementary measures, however, were never widely applied, and they were soon withdrawn, apparently because of complaints from the districts affected by them.

It is impossible for anyone to deny that the operations of the Board of Agriculture against swine-fever have up to the present time been a decided failure, and it becomes important to inquire whether the failure ought to be accepted as evidence that the task to which the Board has set itself, viz., the eradication of the disease, is an impossible one, or whether it ought to be ascribed to some imperfection in the methods employed.

Probably everyone will admit that the experience of the last two years has proved that the difficulty of stamping out swine-fever was greatly under-estimated by those who urged that it should be taken in hand by the Board of Agriculture and dealt with in the same manner as pleuro-pneumonia. The failure of the Board's operations is largely due to the inherent difficulty of the problem, and not in any important degree to the imperfect working of the machinery which the Board has put in motion. It has been suggested that the placing of the responsibility of diagnosis on the veterinary officers of the Board,

instead of leaving it in the hands of local veterinary inspector, has contributed to the failure. That however, is a suggestion that will not bear examination. That mistakes in diagnosis are sometimes made by the officers of the Board they themselves would probably be the first to admit, but no reasonable person can seriously maintain that mistakes would not be more frequently made if diagnosis were left to the uncontrolled decision of local inspectors.

Nor does it appear that the delay involved in sending the viscera to London can be held responsible for the spread of the disease, since the movement of pigs from the premises is forbidden pending the decision of the officers of the Board.

The machinery which the Board has put in motion is probably yielding the best results of which it is capable, and the main cause of failure is the unexpected difficulty in following up the sources of infection and in diagnosing the disease in the living subject. This difficulty can be met in only one way, viz., by imposing severe restrictions on the movement of pigs in every district in which swine-fever is known to exist. Up to the present such restrictions have been imposed only in a partial and tentative manner, and that is the chief hole in the net with which the Board has been fishing for swine-fever.

One can imagine what an outcry would be raised by owners, breeders, and dealers if restrictions adequate to the end in view were introduced in each of the counties in which the disease at present exists, but unwillingness to face that outcry is no justification for continuing a policy that is manifestly futile, and yet enormously expensive. The time has come for letting those who are interested in the breeding and rearing of pigs know that they must choose between submitting to severe restrictions on movement, and abandonment of the efforts to stamp out swine-fever. By way of encouraging them to choose the former alternative, I think we may confidently predict that if they will submit for a time to the declaration of wide infected areas, and to restrictions on movement within those areas, such as are prescribed in the Infected Areas Order of April last, the disease will be stamped out in a comparatively short period.

A PHENOMENAL MULE.

On Friday while at San Fernando, Mr. Frank Pogson, V.S., examined the milking mule of Mr. Devenish, and pronounced it to be a well built and fine animal. Below we give the acting Government Analyst's report of the milk which will no doubt be interesting to our readers :—

Government Laboratory,
Port-of-Spain, Trinidad,
June 3rd, 1996.

MULE MILK.

A mule producing milk is of such rare occurrence that as far as I can find out, no recorded analysis exists. A Kentucky mule at San Fernando has for some weeks past produced milk, yielding about five to six quarts nearly ev.ry day. The udders at times enlarged to a considerable size, and the animal seemed greatly relieved after being milked, and worked with greater cheerfulness.

Through the kindness of Mr. Pogson, M.R.C.V.S., the milk was brought under my notice, and an analysis of the same gave the following results.

For the sake of comparison, the constituents of an average sample of cows', asses' and and mares' milk are included :—

	Mule.	Cow.	Ass.	Mare.
Specific gravity	10·28	10·28 to 10·35		
Water	90·72	86·58	90·70	82·84
Total Solids	9·28	13·44	9·30	17·16
Proteids	2·19	4·08	1·70	1·64
Fat	1·10	4·03	1·55	6·87
Milk Sugar	5·50	4·60	5·80	8·55
Mineral Salts	·49	·73	·59	
Cream	·50	(very variable.)		

The above figures show how closely the milk of a mule resembles that of an ass, and differs entirely in composition from the milk of a cow or mare. The low percentage of total solids and of fat would render the vendor liable to a prosecution if sold as "milk." The milk is much more transparent than cow's milk, it has a faint milky odour and tastes sweeter than usual. Under the microscope it resembles "separated milk." It decomposes less readily than cow's milk. The latter in this climate sours in 6 or 8 hours, whereas the former remained sweet after standing two days in the creamometer. It coagulates slowly with alcohol and hydrochloric acid, and turns brown only on prolonged boiling with the latter. The ash contains a considerable quantity of phosphates and a trace of chlorides.

(Sgd.) WALTER H. INCE,
PhD., F.I.C., F.C.S., Acting Govt. Analyst.

THE DEFINITION OF A "KNACKER."

A case of some importance was heard by Mr. Slade at the Southwark Police Court, a firm of knackers of Plaistow in Essex being summoned at the instance of the Vestry of St. George the Martyr, Southwark, for establishing anew the business of a knacker at 107 Old Kent Road, in contravention of Section XIX. of the Public Health Act. A summons was also issued under Section XX. of the same Act for carrying on the business in question without a licence from the County Council. It appears to have been admitted that horses were disembowelled at the premises in question, and it was urged on behalf of the defence that it had not been proved that any horse had been killed in the defendant's yard, and that the Act of Parliament specifically mentioned "killing." The magistrate decided in favour of the defendants, and dismissed the summons without costs ; he offered, however, to state a special case, so that the Vestry might have an opportunity of appealing to the High Court of Justice for a final decision upon the points of law at issue. It seems to have been shown that a horse was killed in a yard in which the defendants held a common right, but the magistrate was not satisfied that the evidence showed that the defendants had rendered themselves liable to penalty under the section.

VETERINARY SURGEONS AND DOG LICENCES.

Mr. Frank Matthews, veterinary surgeon, of Gayton Road, Hampstead, appeared at Hampstead, in answer to a summons taken out by the Inland Revenue authorities, for having kept a dog without being licensed so to do.—John Banger, an Inland Revenue officer, said that on June 24 he saw a dog on defendant's premises. Defendant had no dog licence, and in a letter to witness, said the dog belonged to a gentleman who had gone to South Africa. Inquiries had been made, but it could not be ascertained that this gentleman had taken out a licence. —Defendant said the dog did not belong to him, and if he had to take out a licence for every dog placed in his

care as a veterinary surgeon, it would be a serious matter to him, for he had something like forty dogs at his place.—Mr. Ransome, supervisor of excise, who appeared in support of the summons, said that defendant was legally liable for every dog on his premises. Defendant said he took out a licence two or three days ago in regard to this dog in the name of the gentleman who had gone to South Africa.—The Bench fined defendant 10s.—*Daily News.*

TUBERCULOUS CATTLE AND THE BUTCHERS.

For some time back there has been continual disputes between the butchers and the farmers attending the Laurencekirk Auction Mart as to the question of allowing compensation for cattle which, on being slaughtered, were found to be affected by tuberculosis. Last week these disputes culminated in an attempt on the part of the Montrose and Aberdeen butchers, who purchase the majority of the cattle, to force the farmers to give compensation for diseased animals. In accordance with this decision, they all absented themselves from the Laurencekirk Mart, and stated that they did not intend to return until their demands had been conceded. At the Laurencekirk Sale last week there were only four buyers present, and, although the supply of stock was much under the average, the prices realised were not what might have been expected. Recognising the imperative necessity of trying, if possible, to put an end to this boycotting by the butchers of the Laurencekirk Mart, which is one of the most successful and best managed local marts in the county, the directors of the Company arranged to hold a meeting with a deputation from the butchers on Thursday last.

After a friendly discussion on the various points involved in the question, the directors of the Company unanimously agreed that, for all animals condemned by the inspectors of the different Local Authorities, the purchaser should be paid by the Company the full purchase price. It was further agreed that, in the case of animals which had not been condemned by an inspector, but which, after being killed, were found to be suffering from disease, the valuation of those animals should be fixed by the manager of the Company and two butchers chosen by the Company, with the further condition that intimation of all such claims proposed to be made must be served on the Company by noon on the Wednesday succeeding the weekly sale day (which is Monday). It may be stated that the decision in regard to compensation will not apply to any animals not guaranteed in the sale-ring by the manager. The whole proceedings of the Company and the buyers were of a harmonious nature, and the decision arrived at is looked upon as a most satisfactory one, both by shareholders, farmers, and butchers.

N. B. A.

Albinos.

In one of the more unfrequented bypaths of the Zoological Gardens is a singular freak of nature in the shape of a perfectly white porcupine. White peacocks, white racoons, and many other abnormally white animals have been from time to time exhibited at the Zoo; but not—at any rate within recent years—a white porcupine. This albinism, as it is called, is a fairly usual sport, and occurs apparently everywhere. It seems to be rare because the unfortunate victim of nature's practical joke is at once singled out by its enemies for destruction. By the nature of the case, the porcupine could be white with considerably greater impunity than many other creatures; but even the porcupine has its enemies.

NEXT YEAR'S "NATIONAL" MEETING.

At a special general meeting of the Royal Counties Veterinary Medical Association, held on July 24th at Reading, resolutions were unanimously adopted that "The Association entertain the National Veterinary Association on the occasion of its meeting at Reading in 1897," and that "The members of the National Veterinary Association, with their wives or lady friends, be invited to a river trip and a luncheon."

The following gentlemen were appointed the committee with power to add to their number; viz. The President, Hon. Secretary, Hon. Treasurer, the President for 1896-97, Messrs. Mellett, Flanagan, James F. Simpson, Wheatley, and Sir Henry Simpson.

A sum was voted from the funds of the Association towards the cost of entertaining, and Mr. Hurndall was appointed Hon. Secretary and Treasurer to the special committee.

MEASURING HORSES AT SHOWS.

The following letter appeared last week in the *Live Stock Journal*:—

In connection with the disqualifying of my pony mare Magic at the recent show of the Yorkshire Society as being over 13 h. 2 in., I append copy of a veterinary certificate given under the hand of two veterinary surgeons, each using a separate standard.

Copy of Certificate. Crewe, July 27th, 1896.

We, the undersigned, hereby certify that we have this twenty-seventh day of July, Eighteen Hundred and Ninety-six, at the Berkeley Stud Farm, by request of A. S. Day, Esq., measured his pony mare Magic, and find her height is at present shod thirteen hands two and a-quarter inches (13-2¼). The shoes measured five-eights of an inch thick, thus giving the actual height of the pony thirteen hands one and five-eighths inch (13 1 5-8).

(Signed) P. Manuel, M.R.C.V.S.
J. B. Manuel, M.R.C.V.S.

My idea of measuring horses is, that if shoes are not measured and deducted, you might as well measure a man in his top hat.

I think it is high time this matter of measuring horses was settled, and that to have an expression of opinion from your readers would be of advantage, and would help to promote a final fiat and understanding on the question.

ALFRED S. DAY.

Berkeley Stud, near Crewe, July 29th.

This question is of equal importance to veterinarians as to horseowners. Mr. Day's comparison of measuring a horse with his shoes on with measuring a man in his top hat reminds us of the soldier (Irish, of course) who when a bullet passed through his grenadier's hat thanked God he had a tall headpiece, or the bullet must have gone through his brain.

The very simplest and best way to regulate height at shows is to have a rule that all horses shall be measured with shoes on as they are shown.

Professor Williams and the West Indies

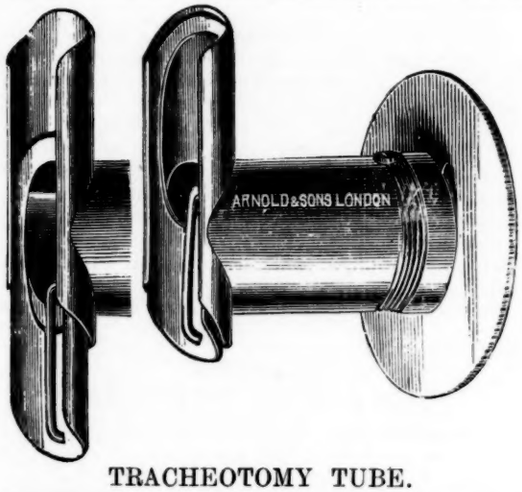
The Jamaich *Post* learns that the Secretary of State for the Colonies has sent a telegram to the Governor stating that Professor Williams, an eminent Veterinary Surgeon, will be prepared to come out to Jamaica with his assistant, to study and report upon the disease among cattle, prevalent there, provided the Government will agree to pay him £500 and his assistant £100, and all

their expenses from and to England and while in the Colony. The Professor will agree to remain there for three months. On the receipt of the telegram, His Excellency informed the elected members of its purpurt, asking their opinions on the matter. A distinguished member of the Leglislative Council has estimated, that if the experiment is tried, it will cost the country about £1500.—*The Daily Chronicle* (Demerara).

Personal.

ACCIDENT.

Mr. WILLIAM ROACH left his home in Sidwell Street, Exeter, on Friday afternoon July 24th, about half-past 3 o'clock, in a trap, attached to which was a fine chestnut horse. Mr. Roach was accompanied by his groom, Stephen Ichmont. In Sidwell Street the bit in the animal's mouth became disarranged, and the horse dashed off at a tremendous pace. Opposite St. Sidwell's Church the horse stumbled and fell, Mr. Roach and the groom were thrown out of the trap with considerable violence. The animal immediately regained its feet and dragged Mr. Roach for a short distance before he relinquished his hold of the reins. The groom fell upon his head. It was found that Mr. Roach had fractured his left leg, and that the groom had received a fracture to the base of his skull. The police ambulance was telephoned for, and Ichmont was removed to the Devon and Exeter Hospital, but Mr. Roach was taken to his residence. The animal, which was bruised about the knees, continued its career down Sidwell Street, turned into Southernhay, and was stopped at the end of that thoroughfare. Mr. Roach was reported as well as could be expected. Ichmont regained consciousness soon after the accident.—*Devon & Exeter Gazette.*



TRACHEOTOMY TUBE.

The annexed is an iilustration of a new Tracheotomy Tube. One of its chief advantages is its simplicity and also the fact of its being self-locking, no separate pieces being required after it is once introduced into the trachea.

I myself have used it in my profession during the last two years, and in every case have found it act satisfactorily. I am quite eonfident that if brought to the notice of the profession it would come into generai use.

Messrs. Arnold & Sons, of West Smithfield, London, have beeen appointed the Sole Agents for the sale of the tube.

Doncaster. R. C. THOMPSON.

OBITUARY

JOHN MCLAREN, M.R.C.V.S., Beverley.
Graduated, Edin. April 27th, 1863.

Mr. John McLaren, veterinary inspector to the Beverley Corporation and Pasture Masters, and also to the East Riding County Council, died at his residence in Beverley, on Wednesday, July 22nd. His remains were interred in the New Walk Cemetery. Deceased was 55 years of age.

JOSEPH COE, M.R.C.V.S., Stoke-upon-Trent.
Graduated, Lond., May 2, 1860.

Mr. Joseph Coe, veterinary surgeon, was seized with apoplexy on Thursday afternoon, July 30th, and died at eight o'clock the same evening without having recovered consciousness. Mr. Coe served his articles with the late Mr. Cox, of Ashbourne, he had been in practice at Stoke for about 30 years, and was well known throughout the district. He held a government appointment during the rinderpest. For many years Mr. Coe had been reckoned an excellent judge of horses, and only on Tuesday last he was officiating as veterinary surgeon in the horse ring at the Trentham Agricultural Show. In the previous week he was judge of the horse-shoeing competitions at the Staffordshire Agricultural Exhibition at Longton. He held the appointments of veterinary surgeon to the London and North Western and North Staffordshire Railway Companies for the North Staffordshire district. His only son, Mr. William Coe, was partner with him in his business.—*Staffordshire Advertiser.*

CORRESPONDENCE.

"THOSE CERTIFICATES."

SIR,

Apropos of your editorial note in your issue of July 18th, *re* 'Those certificates,' perhaps you will excuse my encroaching on your space for the purpose of exposing the absolute want of consideration, to say nothing of the unbusiness-like attitude shown by the Council in their arbitrary decisions concerning the nature of the certificates which they will accept as qualifying for admission to the Veterinary College. They are perfectly within their right in advancing their standard in accordance with the general advance of education in the country, but what is complained of is, that they make their decisions retrogressive, thereby putting those who may desire to enter the college to great inconvenience, and causing much loss of valuable time. The following case I think justifies the claim for greater consideration :—

A youth in my service passes the exam. of the Scottish Institute in certain subjects in Edinburgh. On enquiry he is informed on 28th October, 1895, that he can take the remaining subjects '*when and where he pleases.*' Acting on this information he proceeds to prepare for the Second Class College of Preceptors' Exam. in those subjects in which he has not yet passed.

On the 14th of May he received the following communication. "You will have to pass in the whole of the subjects at one sitting unless you choose to enter the college this term." This step he at once took, and proceeded to take the College of Preceptors' exam., which he passed in all the subjects remaining. To what purpose he had spent his efforts may be learnt from the following, which he received from the Secretary on July 20, 1896. "Since you were here the Council of the Royal College have had a meeting and have refused to accept certificates obtained at two places. As I informed you,

such were previously accepted. You will therefore have to get your certificates by passing in all the subjects at one place." Thus is a year—and that one of the most valuable in the life of the future student—completely wasted by an arbitrary decision, which it was quite out of his power to foresee in face of the unqualified assurance he received on October 28, 1895.

Further I may point out how his employer suffers inas-much as out of consideration for the extra strain in the way of study, the youth is of less service, and is excused some of his duties. Of course this can only act to the detriment of future aspirants.

It would have only been fair and in accordance with the customs of other bodies to have given a fair notice (say two years) of the intended changes.

Thanking you in anticipation,—I am, etc.,
Halifax, 5th Aug. P. M. WALKER.

THE R.C.V.S. AND THE R.S.P.C.A.
(A DEFENCE FUND.)

SIR,

I have read with great interest the letter signed J. G. Parr in your issue of to-day, headed "The R.C.V.S. and the R.S.P.C.A." and I feel so strongly with regard to the hardship to the poorer classes, and the inconvenience to us all from int rference, without due cause, on alleged grounds of cruelty to animals, whether in agricultural arrangements or ordinary service of trade or other transmissionthat if possible I should be glad to assist in case of collection of funds for purposes such as your correspondent suggests.

I do not sign my name but you will be aware that the funds named would be forthcoming, and I willingly promise in case a defence society should, as your correspondent suggests, be formed to give £100 to the funds, and I am empowered by a friend, thinking like myself on the subject, to promise an additional sum of £50.

I have no complaint personally against the R.S.P.C.A., but I have suffered so much from persecution in discharge of my official and other duties from utterly groundless attacks as to cruelty that I can thoroughly feel with those who suffer similarly but have neither the means nor the knowledge necessary to defend themselves from *causeless allegation*, and I should be thankful to help.

My enclosed letter with signature makes my promise valid.—Yours etc.,

"AGRICOLA."

August 1st, 1896.

A LIBELLOUS POET.

SIR,

There is an old horse-dealer in the West End of London who combines a taste for literature with a knowledge of horses. The "Heathen Chinee" was not more "childlike and bland" than this astute old man. Libelling the veterinary profession is his latest achievement, but perhaps we should accept this as flattery, for those who know him would much prefer his censure to his praise. Still every one does not know him, and the distribution of the following on a card to his customers may possibly excite unworthy suspicions. The profession ought at any rate to know their friend. W.

An unsound one for me is the cry of the Vet.,
To crab each and all is a guinea to get.
More favours required, for—well, on my soul—
The guinea is sound, but no horse since a foal.

"Does your Master wish to keep him or not?"
This is the way the Vet. pumps.
Says John, "I've not got a mag out of this lot;"
And this is the way the cat jumps.

MATRICULATION EXAMINATION.

SIR,

The Council of our College has devoted a good deal of its time during the last year to fixing the standard to be used at the above examination. From what has come to my knowledge lately the Council would be acting wisely if it now turned its attention to the methods of *one* at least of the bodies which profess to conduct this examination. An examination was held not long ago, the business being conducted by an old gentleman who was not at all suited for such a task. The candidates were packed into a small room where they sat near one another. Not only did they copy from each other but in one case a candidate had the whole of the work done for him by his neighbour. Questions and answers were freely exchanged over the whole period. Books were brought into the room and used whenever needed. The official who presided over this farce did not take the slightest notice, sat at the desk the whole of the time looking over other papers, presumably those sent in from an examination held elsewhere.

What will the Council think of this! What will the profession think of it!!

It is disgraceful, and the Council ought to take immediate steps to put a stop to it. Two ways occur to me: 1. Send one of their own members as a delegate, as they do for the professional examination, to see that justice is done: or 2. Give notice that a certificate from this Examining Body will not for the future be accepted by the Royal College of Veterinary Surgeons.

I perhaps ought to add what is quite obvious, that the officials at the institution where this examination was perpetrated are in no way responsible for the above transaction. LADAS.

ADVERTISING.

SIR,

To-day I cut the enclosed out of a little book entitled M'Connell's Agricultural note book, fifth edition, published by Crosby Lockwood & Co. If the document is not advertising pure and simple what is?

I think if the Council would spend their time looking after the interests of those members of the College who are trying to get a living in a straightforward honest manner, and try and protect them from people of this class, it would be far better than continually wrangling over this or that educational certificate.

I enclose my name and address, but prefer to sign myself

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COMMUNICATIONS, BOOKS, AND PAPERS RECEIVED:—Messrs. J. G. Parr, W. Pauer, G. Mayall, J. R. Green, E. King, A. Millar.

Veterinary Magazine (Philadelphia, June), *The Devon and Exeter Gazette*, *The Kentish Gazette*. Aug. 1.

Messrs. E. W. Hoare, G. Thatcher, H. W. Caton, M. L. Johnson, W. E. Litt, J. W. Coe, P. M. Walker. "A Country Practitioner," "Agricola."

The Civil and Military Gazette. Aug. 8.